

## Improved Learning Efficiency and Academic Achievement by Dental Students During Basic Science Medical Virology Training by Cooperative Learning in Tehran University of Medical Sciences

Abbas Bahador\*; Ahmad Sodagar; Farhad Bonakdar Hashemi

*Department of Microbiology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran*

abahador@sina.tums.ac.ir

**Background & Objectives:** Student-oriented approaches, such as Cooperative learning (CL), have been proposed as the best way of learning for medical education. Among Iranian medical universities, experimental evidence elucidating CL advantage is lacking. Such evidence will help overcome the many of challenges in adopting more modern education Methods to replace the traditional methods. To evaluate the effects of cooperative learning among dental students who are training in medical virology. Each topic in the beginning of the.

**Methods:** This quasi-experimental study compares students learning before and after cooperative learning manner. Jigsaw II, cooperative learning methods was used. All subjects of medical virology were taught in cooperative manner for 30 sophomore dental students from Tehran University of Medical Sciences (TUMS), in the academic year 2009-10. General virology was also taught in a similar way for all TUMS dental students, in 2010-11 and 2011-12 academic years. Students evaluations included both “recall” and “comprehension” type questions, by a pre-test at the beginning of each topic during the semester and a post- test held at the end of the topic. The opinions of students about cooperative methods were inquired at the same time with post-test. The data were analyzed using SPSS software and one- way ANOVA, post Hoc multiple comparisons.

**Results:** For all students the post-test scores were significantly higher than the pre-test scores. The difference in the number of correct answers to post-test “comprehension” questions was significantly higher than pre-test scores. Students also expressed significantly higher satisfaction with the CL teaching methods citing improvements in the 2 domains of learning; i.e. developing a sense of participation, and enhanced learning.

**Conclusion:** Cooperative learning (CL) Methods was found to be a more efficient Methods to teach Medical Virology to dental students. CL lead to enhanced academic achievement through student's participation in educational program by encouraging group interaction, and sequential transfer test feedback and data analysis. This study suggests that CL methods can be utilized in teaching a variety of medical subject matters by motivating students to reflect on the subject, and reduce memorizing process and improve their academic achievement.

**Keywords:** Medical Education; Cooperative Learning; Medical Virology